

# Boulder's Energy Future

November 10, 2016

# Agenda

I

Objectives and Introduction to the Financial Forecast Tool (FFT)

II

Assumptions and Charter Metrics

III

Results and Conclusions

# Introduction

## Objectives

### Part 1:

1. Explain **why** the city created the Financial Forecast Tool (FFT)
2. Explain **what** the FFT does and some of the significant assumptions
3. Share key **results** and conclusions
4. Questions, comments

### Part 2:

1. Demo of the FFT
2. Discuss assumptions, technical details

# Introduction

## Why did the city create a FFT?

Hint: It's not just about the numbers!

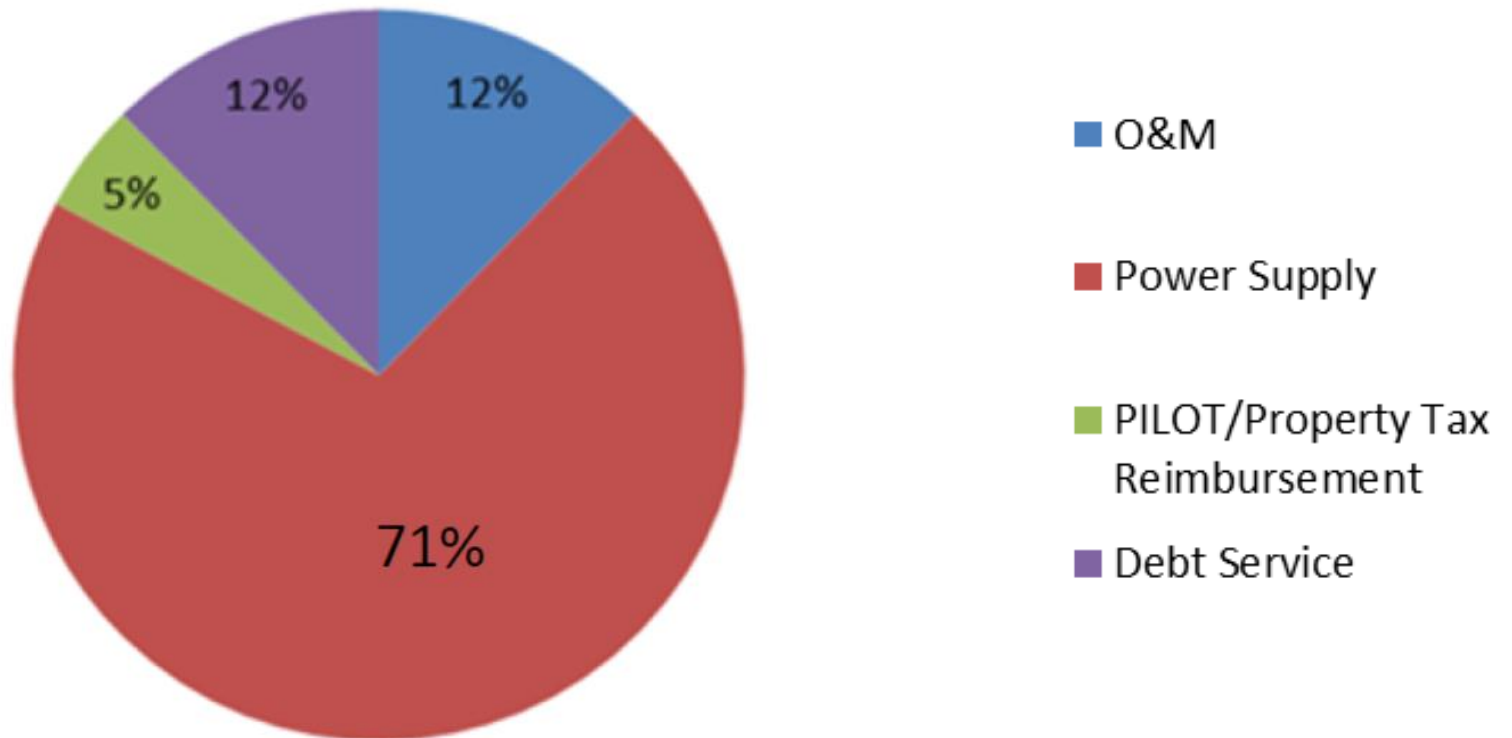
1. Useful during transition and longer term operational tool.  
**Focus on functionality, not the numbers. Cannot predict the future. It's about the TOOL itself.**
2. User-friendly and simple to alter as requirements/expectations change. Ability to test sensitivities.
3. Forecasts for 20 years, can look at historical trends
4. Evaluates key financial metrics: cash flows, budgets revenue requirements, Debt Service Coverage Ratio (DSCR)
5. Forecast management/operational decisions

## What the FFT doesn't do:

- Design Rates
- Generate Load Forecasts
- **Power supply modeling**
- Measure metrics of reliability, renewable energy, and carbon intensity
- Compare rates with peer utilities

# Assumptions

## Proportional Costs: 20-Year Average



# Assumptions: Debt Service

II

**Average Annual Proportion of Expenses = 12%**

| <b>Debt Assumptions: 6 months before Day 1</b> | <b>Amount (2016\$)</b> |
|--|------------------------|
| <b>Bridge loan for Day 1 start up costs</b>    | <b>\$8.5M</b>          |

| <b>Debt Assumptions: Day 1 (Jan 2018)</b>                                | <b>Amount (2016\$)</b> |
|--|------------------------|
| <b>Acquisition</b>   | <b>\$150M</b>          |
| <b>Repayment of Bridge Loan +<br/>Repayment to General Fund (\$3.2M)</b> | <b>\$11.7M</b>         |
| <b>Operating Reserves (Working Capital)</b>                              | <b>~ \$30M</b>         |

# Assumptions: Debt Service

**Average Annual Proportion of Expenses = 12%**

| <b>Debt Assumptions:<br/>Post-Day 1</b>                         | <b>Amount (2016\$)</b> |
|---|------------------------|
| <b>Separation Plan:<br/>Issued over first 3 years</b>           | <b>\$53.4M</b>         |
| <b>Start up/Transition Plan:<br/>Issued Beginning of Year 3</b> | <b>\$32.1M</b>         |
| <b>Capital Improvements:<br/>Issued over 20 years</b>           | <b>\$59.2M</b>         |

Capital improvements & Undergrounding Long Range Plan is approximately \$120M over the 20-year forecast. Half is debt funded; Half funded through excess cash



# Assumptions: Operations and Maintenance (O&M)

II

Average Annual Proportion of Expenses = 12%

American Public Power Association (APPA) Selected  
Financial and Operating Ratios of Public Power Systems

Align with median benchmarks for Western Region and  
20,000-50,000 customers

- Distribution O&M per retail customer
- Distribution O&M per circuit mile
- Customer accounting, customer service, and sales expense per customer
- Admin and general expenses per customer

# Assumptions:

## PILOT and Property Tax Reimbursement

Average Annual Proportion of Expenses = 5%

PILOT = Payment in Lieu of Taxes, Charter limited at 4%

Revenues to replace property tax revenues to County, BVSD, etc. that currently receive property tax from Xcel Energy ~\$2.2M/year

# Assumptions: Power Supply

Average Annual Proportion of Expenses = **71%**

Three options included in FFT:

- 1. 4-year 100% Xcel then Gradual Departure**
2. 4-year Xcel, then 100% renewable
3. 20-year 100% Xcel

# Assumptions: Sensitivity Tests

II

|        | Acquisition              | Interest Rates<br>(Taxable/Tax Exempt) | Debt Service Coverage Ratio (DSCR) | Annual O&M      | Load Growth Rates              |
|--------|--------------------------|--|------------------------------------|-----------------|--------------------------------|
| Low    | \$150M                   | 4.5/3.5                                | 1.25                               | -20%            | 2.46%                          |
| Medium | \$150M                   | 5.5/4.5                                | 1.50                               | Median APPA     | 1.43%                          |
| High   | \$214M                   | 6.5/5.5                                | 1.75                               | +20%            | 0.31%                          |
| Source | City Charter/Xcel Energy | Financial Advisor                      | Financial Advisor                  | APPA benchmarks | Xcel ERP (Vol. 2, Table 2.2-2) |

# Charter Metrics: Assumptions

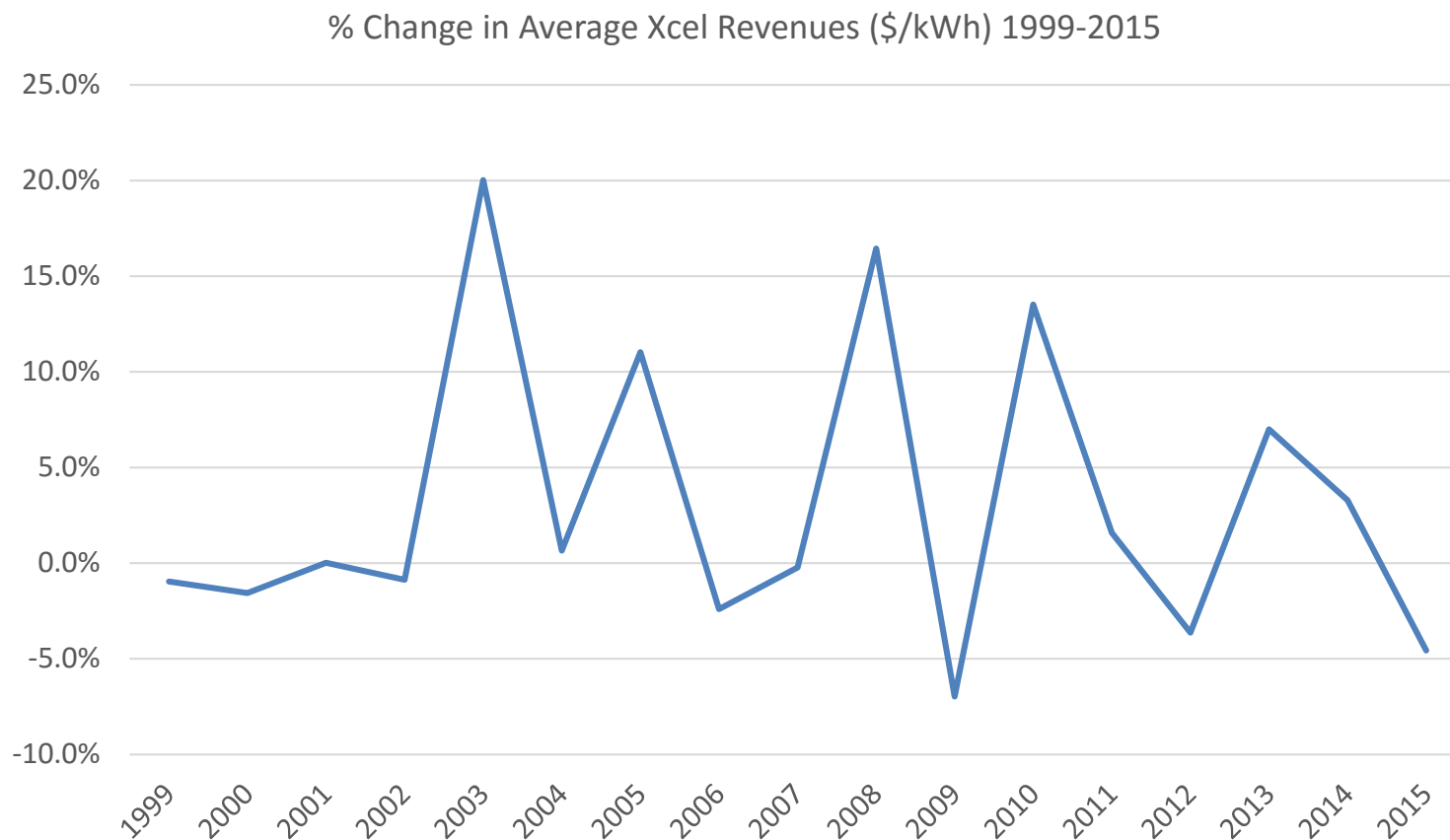
## Revenue Requirement / Earnings Test

- Uses Xcel “all-in” rates forecasted for 20 years
- Revenue collection compared to revenue requirement
- Considers minimum debt service coverage ratio (DSCR), flags years where extra revenue is required to meet target DSCR level.

## Cash Flow Analysis

- Uses rate forecast, assumes no additional revenues collected
- Additional amount collected for debt coverage included in available cash
- Cash used to build reserves, fund capital projects, etc.

# Assumptions: Historic Revenues Collected



Overall Trend: 3.1% annual escalation  
2003-2011: 6% annual escalation

# Assumptions: Unanticipated Costs



## How did the city account for unanticipated additional costs?

- 1) Costs before bonds are issued (ex: going concern)
  - Use FFT to determine if utility is still cost effective
- 2) Costs after bonds are issued (ex: stranded costs, natural disaster)
  - Cost savings could be used, in part, to absorb such costs should they arise.

## Long-term cost savings

- Of the four scenarios published, **three result in long-term cost savings**, compared to remaining with Xcel
  - The savings are driven by relying on cheap renewable resources and accessing a less expensive power supply.
- The **most expensive** of the four scenarios would occur if the city were to **buy all of its power from Xcel Energy for 20 years**.



# Preliminary Results

## Meet or exceed charter metrics

- A city-operated utility could **meet each of the financial charter metrics** approved by voters in 2011 and 2013.

## System improvements, local renewables, lower rates

- Long term savings could be used for:
  - **Rate stabilization, lower rates**
  - **More rapid undergrounding or other system improvements**
  - **Investing in local renewable energy projects or other community identified projects.**
- These dollars stay in the community and **support meeting local goals.**

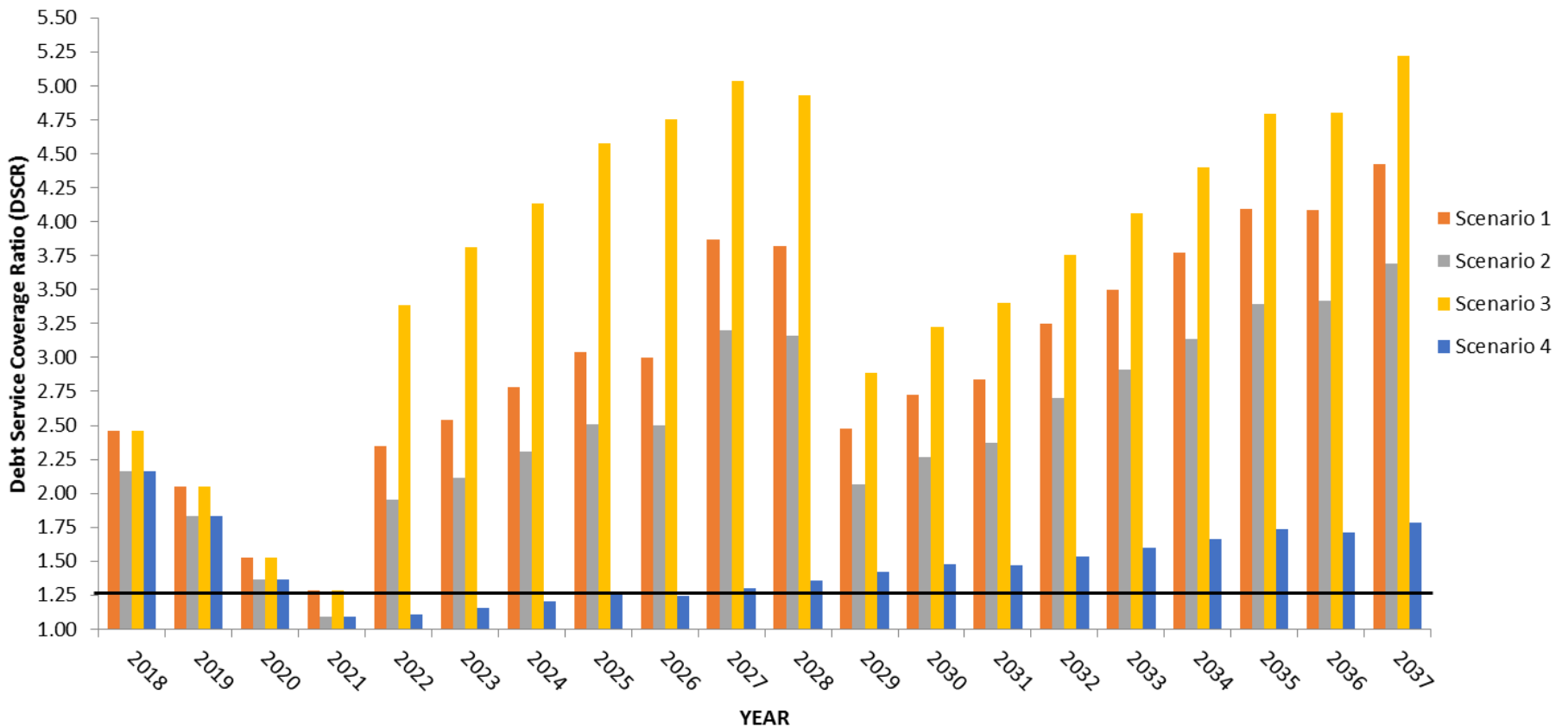
# Results

| Scenario | Acquisition Cost | Power Supply                                |
|----------|------------------|---|
| 1        | \$150M           | 4 years Xcel Energy, then gradual departure |
| 2        | \$214M           | 4 years Xcel Energy, then gradual departure |
| 3        | \$150M           | 4 years Xcel Energy, then 100% renewable    |
| 4        | \$214M           | 20 years Xcel Energy                        |

| Results - Revenue Requirement/Earnings Test, DSCR min is 1.50 |  | Scenario   |            |            |              |
|---|--|------------|------------|------------|--------------|
|   |  | 1          | 2          | 3          | 4            |
| NPV of Savings/(Losses) \$ in (000s)                          |  |            |            |            |              |
| NPV of Savings/(Losses) over 5 years                          |  | \$ 13,781  | \$ (4,463) | \$ 33,086  | \$ (24,006)  |
| NPV of Savings/(Losses) over 10 years                         |  | \$ 118,962 | \$ 77,611  | \$ 254,672 | \$ (72,163)  |
| NPV of Savings/(Losses) over 20 years                         |  | \$ 322,837 | \$ 246,010 | \$ 539,128 | \$ (101,719) |
|   |  |            |            |            |              |
| Results - Cash Flow, no minimum DSCR set                      |  | Scenario   |            |            |              |
|   |  | 1          | 2          | 3          | 4            |
| NPV of Cash Flow \$ in (000s)                                 |  |            |            |            |              |
| NPV of Cash Flow over 5 years                                 |  | \$ 57,007  | \$ 50,465  | \$ 76,312  | \$ 30,922    |
| NPV of Cash Flow over 10 years                                |  | \$ 203,258 | \$ 183,200 | \$ 338,968 | \$ 33,426    |
| NPV of Cash Flow over 20 years                                |  | \$ 469,196 | \$ 427,066 | \$ 685,487 | \$ 79,336    |
| Debt Service Coverage at acceptable levels                    |  | Yes        | Yes        | Yes        | No           |

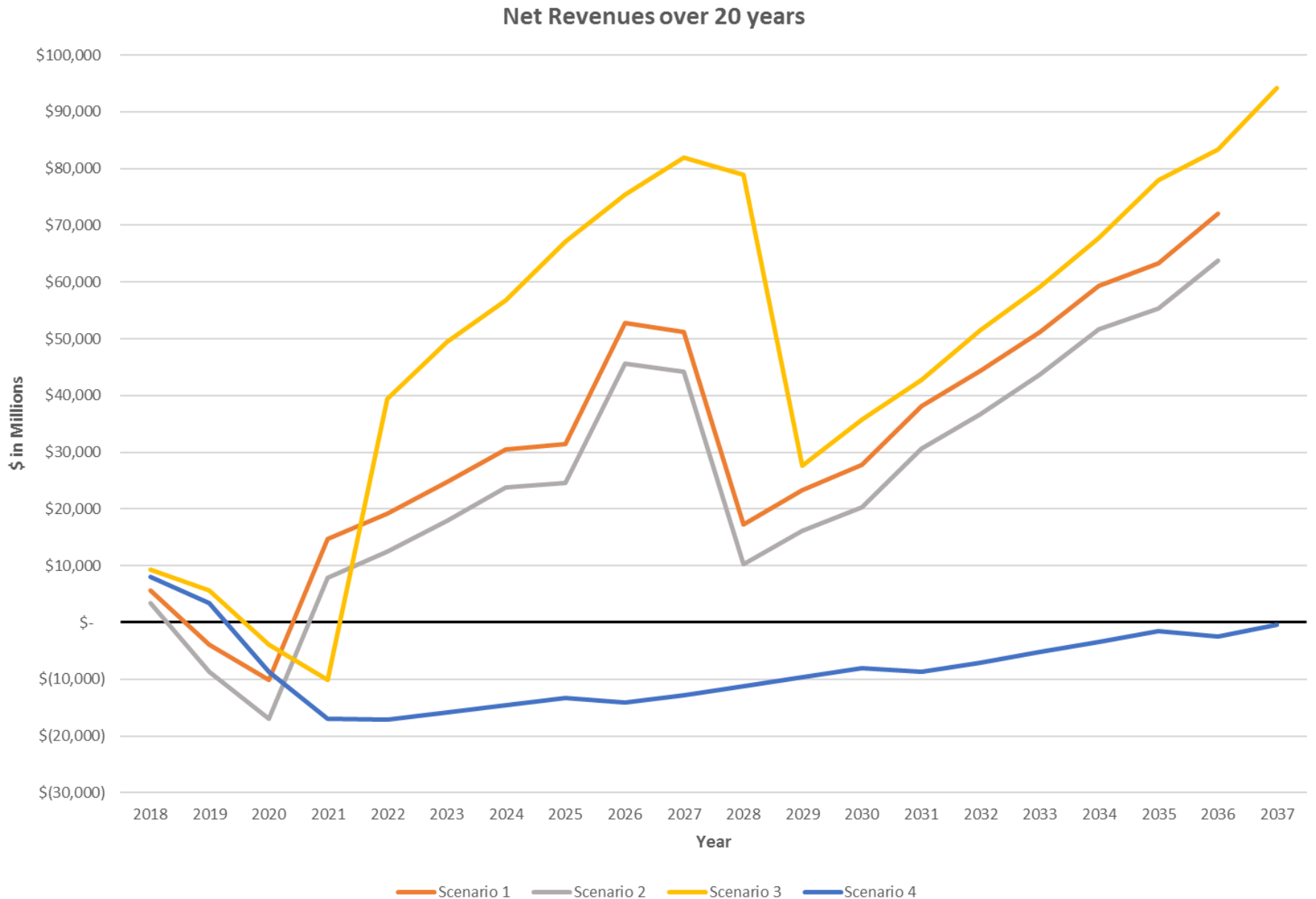
# Results

## Debt Service Coverage Ratio Forecast over 20 years



# Results: Net Revenues over 20 years

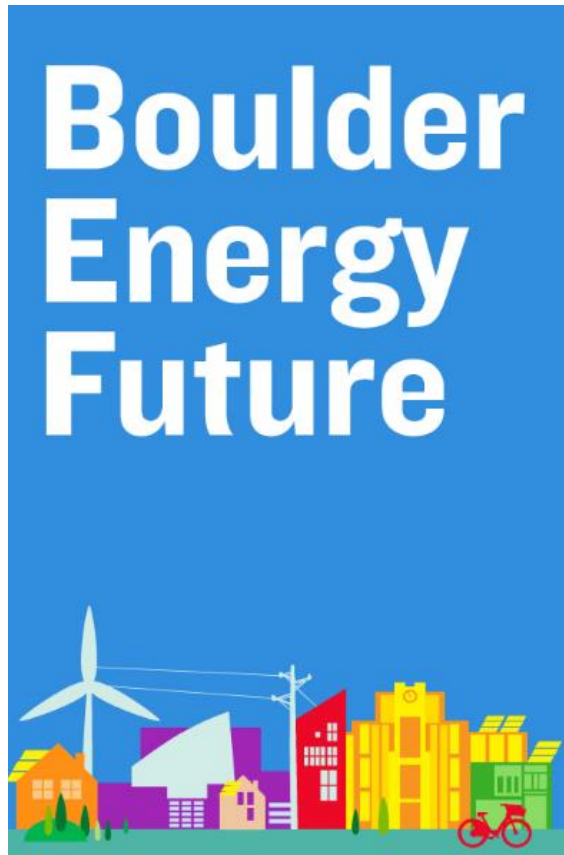
III



# What's Next?

- Continued community conversation
- Continue to run sensitivities as credible data is available to test current assumptions and/or outcomes to legal proceedings, etc.
- Welcome input, feedback, conversations about assumptions
- Schedule community “office hours” every two weeks to discuss, program new assumptions, review, etc.

# Questions and Comments



**Thank you!**

Additional information as well as the full financial forecast tool are available for download at:

**<https://bouldercolorado.gov/energy-future/financial-forecasting-tool>**

# Part 2

## Financial Forecast Tool Demo

Materials needed:

- 1) Quick Guide – printed copies
- 2) FFT spreadsheet on your computer



# WiFi

Network: FPC Private

Password: N\$ph1l1m

BULL PEN

# Risks

| Risk  | When will we know about risk | Possible Mitigation  |
|---|------------------------------|--|
| Stranded Costs  | Pre-Day 1                    | Evaluate Power Supply Options<br>Evaluate rates over time against Xcel   |
| Reserves (working capital) building from 3 to 6 months          | Pre- Day 1                   | Evaluate levels of excess revenues;<br>Evaluate rates over time against Xcel;<br>Evaluate availability of short-term credit in event of large draw on reserves |
| Unanticipated Damages (Going Concern, Damages to the Remainder) | Pre- Day 1                   | Evaluate room in model under most likely scenario  |
| Acquisition Costs   | Pre-Day 1                    | Evaluate where FFT can handle \$214M<br>If higher than \$214M, would require alternative strategy or vote  |
| Loss of Load  | Anytime                      | Evaluate O&M, keep stable, adjust capital plan, reduction of power supply acquisition; Key Account Programs; Contracts for Performance                         |
| Large Self Generation/DSM                                       | Anytime                      | Evaluate O&M, keep stable, adjust capital plan, reduction of power supply acquisition  |
| Significant failure early on                                    | First five years             | Line of credit, access to other short-term capital<br>Evaluate rates over time against Xcel  |

# Introduction

How is this different from previous model (2013)?

1. Deterministic vs. Probabilistic
2. “Can we” vs “Should we”
3. Resource modeling
4. Xcel baseline
5. Carbon tax
6. Capitalized interest (deferred debt payments)

# Introduction

## Modeled Financial Policies:

- Depreciation of capital expenses
- Debt Service Coverage Ratio (DSCR)
- Capitalized Interest
- Reserves – plan to build over time

# Charter Metrics: Assumptions

II

## Major Assumptions – Static

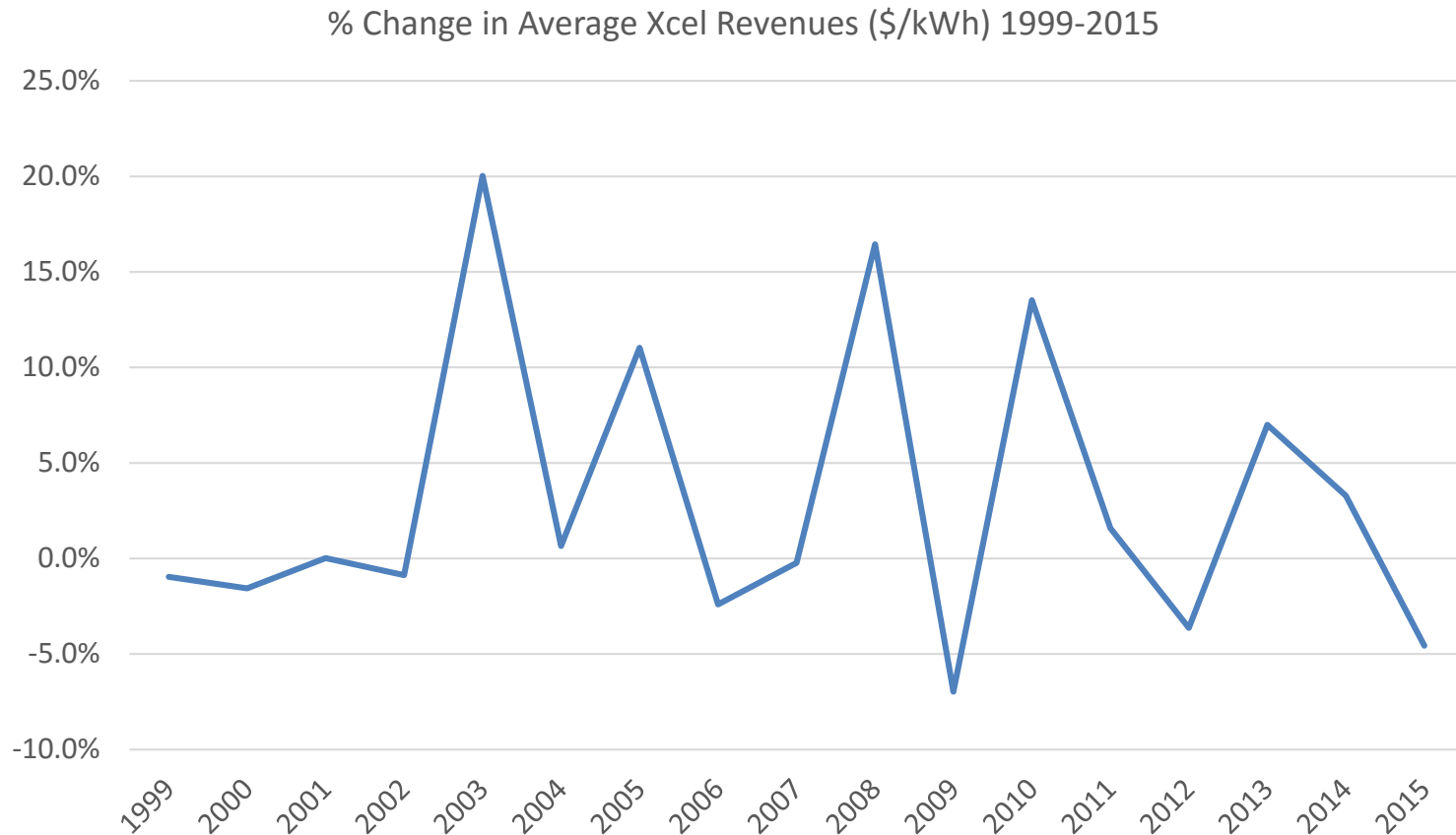
| Initial Year                      | 2018   |
|-----------------------------------|--|
| Payment in lieu of Taxes          | 3%   |
| Capital Projects + Undergrounding | ½ Debt fund, ½ Revenue fund over 20 years (~\$5.9M/year) |
| Pre-day 1 costs (6 months)        | ~\$8.5M (\$11.4M fully loaded on day 1)                  |
| Repayment to General Fund         | ~\$3.2M  |
| Reserves (working capital)        | 3-6 months O&M   |
| Start-up / Transition plan costs  | ~\$32.2M, tax-exempt in year 3                           |
| Separation costs                  | ~\$53M over three years                                  |
| Inflation                         | 2%   |
| Discount rate                     | 5%   |

# Charter Metrics: Conservative Assumptions

Built FFT to be very conservative, then adjusted  
some areas to be more realistic

- O&M – moved to median APPA
- Capital Plan/Undergrounding –revenue fund over time to reduce debt funding
- Xcel's rate escalation
  - Environmental regulations requiring capital improvements
  - Carbon tax
  - Historic rate increases

# Charter Metrics: Conservative Assumptions

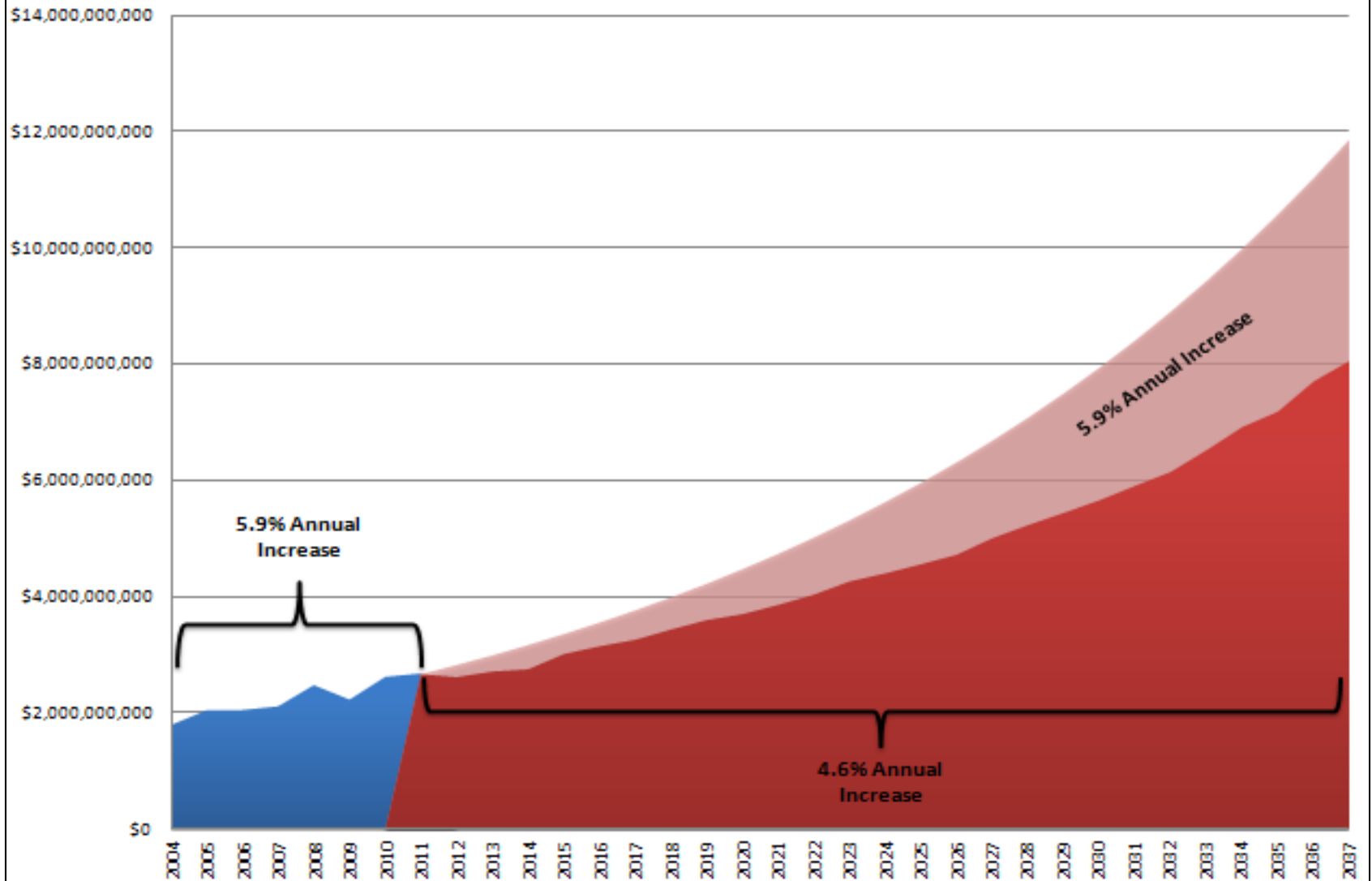


Overall Trend: 3.1% annual escalation  
2003-2011: 6% annual escalation



## Xcel's Revenue Requirement: Actual and Modeled

■ Historic Revenue Collected (FERC 861 via EIA)   ■ Forecast Revenue Need at 5.9%   ■ Forecast Revenue Need (Model)



# Load Forecast Risks



The load forecast assumptions presents two significant risks:

1. The use of Xcel system average data vs. Boulder-specific data.
  - This is relevant to both the number of customers per class as well as average annual usage per customer.
  - Any variation between Xcel and Boulder may result in higher or lower cost of service, revenue collection and purchased power costs.
2. The growth rate for number of customers and annual usage may vary substantially from City of Boulder estimates of population and job growth and Xcel estimates of long-term load growth.
  - As a result, annual revenue collection may be under- or overestimated.

# Purchased Power Cost Risks II

The three purchased power scenarios present five risks:

1. Assumption that purchased capacity costs will be the same as the production formula rate if purchased energy is less than 100%
2. Assumption that OATT covers all ancillary services if purchased energy is less than 100%
3. Assumption that 50%-75% of energy requirements is available at Rush Creek price.
  - Rush Creek price is conservative: includes 90 miles of 345 kV transmission. Price may be lower at 245 kV (and if < 90 miles is constructed).
4. Assumption that transmission service is available for energy not purchased from Xcel.
5. Assumption that stranded costs can be mitigated through one or more of the scenarios.

# Xcel Retail Rates Risks



The Xcel Retail Rates forecast presents three risks:

1. The forecasts rely on rate design in the settlement agreement of the 2016 Xcel Phase II Rate Case.
  - Part of the settlement agreement envisions a transition to time-of-use rates and/or demand-based rates for all residential customers in 2019, following a test period between 2017-2019.
  - Absent reliable data on customer behavior change resulting from time-of-use and demand rates, the forecast bases revenue collection on the continued use of residential rate design without time or demand components.
2. It is unclear whether time-of-use and demand rates will generate more or less revenue than current rate design.
  - For purposes of complying with the charter metrics on rate comparability, it is therefore difficult to determine if BLP customers will prefer current rate design to time-of-use and demand rates.
3. Rate forecasts are based on customer usage within each class, which is based on Xcel system averages vs. Boulder-specific averages. As such, the rates included may be too high or too low.

# Results

## Key differences between 2013 and 2016 (2018\$)

| Category   | 2013    | 2016     |
|--|---------|----------|
| Power Supply Cost (\$/kWh) <sup>1</sup>  | 0.073   | 0.078    |
| Transition Plan Costs - Debt Funded  | ~\$22M  | ~\$40.7M |
| Separation Costs   | ~\$4.9M | ~\$53.5M |
| Median Debt Service Coverage Ratio   | 1.63    | 1.50     |
| Median Interest Rates % (Taxable/Tax Exempt)   | 6.5/5.5 | 5.5/4.5  |
| 1. 2013 was "low cost" option, 50% wind/50% wholesale market; 2016 cost is 100% Xcel |         |          |

# Results

| Comparisons to what we get today through Xcel                    |   |
|--|---|
| Category   | Municipal Utility   |
| Energy Efficiency Programs                                       | Similar, \$5.3M/year, includes CAP tax replacement funding, under our control   |
| Undergrounding   | More than double, ~\$2.2M/year modeled  |
| Increasing renewable energy                                      | 80% renewable electricity by 2030   |
| Reliability through accelerated capacity and system improvements | Higher, \$53.5M separation plan, \$60M capital plan, \$114M undergrounding plan |